

PPN 04 – Command Reciever

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PPN 04 replaces old versions of receivers PPN 01, PPN 02 and PPN 03. It is designed to be integrated into acoustic beacons or other devices with a supply voltage range of 5 V to 36 V. PPN 04 converts received commands into 6 open collector outputs OC1 to OC6 and one voltage-free relay contact. The switching time is approximately 100 ms.

To achieve compatibility with the PPN 03 receiver, four outlets OC1 to OC4 can be configured as inputs. The power, inputs and outputs of the commands are led out through a 10-wire, optionally 16-wire flat cable with a self-tapping connector, or a rectangular 10 or 16-pin connector to secure the cable against falling out.



The connection of both cable and connector variants is evident from Fig. 1 to Fig. 4 and descriptions.

1, 2 Power Supply +5 V to +34 V 3 Input / Output IN1/OC1

5 Input / Output IN2/OC2

7 Input / Output IN3/OC38 Standing open relay Contact

9 Input / Output IN4/OC4

4 GND Power

6 Output OC6

10 Relay Contact



Fig. 1: 10-pin connector



1,2 Receiver Housing

- 3 Output OC6
- 4 Unused
- 5 Output OC5
- 6 Unused
- 7,8 Power Supply +5 V to +34 V9 Input / Output IN1/OC1
- 10 GND Power
- 11 Input / Output IN2/OC2
- 12 Output OC6
- 13 Input / Output IN3/OC3
- 14 Standing open relay Contact
- 15 Input / Output IN4/OC4
- 16 Relay Contact

Fig. 3: 16-pin connector



Fig. 2: Receiver connector 10-pin





Fig. 4: Receiver connector 16-pin

Note 1: If the self-tapping connector is not fitted at the end of the flat cable, the pin-out on the cable applies.

Input / Output	10 pin	16 pin
IN1/OC1	3	9
IN2/OC2	5	11
IN3/OC3	7	13
IN4/OC4	9	15
OC5	-	5
OC6	6	3, 12

The pin-out is clearly listed in the following table:

Function Description

After connecting to supply power, the green LED will show the program version, 1x = v.0.2, 2x = v.0.3 etc.

The function of the PPN04 receiver is dependent on the mode stored in the microprocessor and the DIL4 switch setting, see Fig. 5.

If the receiver is connected to power supply LED flashes briefly every two seconds.

When receiving any command it lights up continuously for one second..



Fig. 5: View of the PCB

Setting	Setting	Replaces the	Note
DIL4	Dec.	Receiver	
4321	See Order Number		
0000	0	-	Unused
0001	1	-	Unused
0010	2	PPNRSCZ	RS232 OC output OC1 **
0011	3	PPNRSSK	RS232 OC output OC1 **
0100	4	-	Unused
0101	5	-	Unused
0110	6	-	Unused
0111	7	-	Unused
1000	8	PPN01(02)CZ	Commands set to DIL4
1001	9	PPN01(02)SK	Commands set to DIL4
1010	10	-	Unused
1011	11	-	Unused
1100	12	-	Unused
1101	13	-	Unused
1110	14	PPN03CZ	Command 5, Re ON 2 – 32 minutes
1111	15	PPN03SK	Command 5, Re ON 2 – 32 minutes

Table of Modes of Operation:

** This mode is available for program versions v.0.3 and higher

Mode 14 and 15 according to the "Table of modes of operation"

The PPN 04 receiver in this configuration responds only to command 5 (TL5 on VPN 01 and TL3 on VPN 03). The relay contact closes for a preset time (configure via DIL4). Every other received command 5 resets the timeout again - the staircase timer light switch principle. The decision level of external inputs is around 1.8 V. Logic 0 is guaranteed in the range 0 to 1 V, logic 1 from 2.5 V to 36 V. The switching time of the relay T can be set using the DIL4 switch to select the binary number **b** or by using external inputs to select the ext binary number **extb**. Then timeout is:

for ext. inputs not connected or log0 is	T = (1+b) x 120 [s]
for the DIL switch in state 0000 is	T = (1+extb) x 120 [s]

For example	
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DIL 0000, EXT 0000	T = 120 s	= 2 minutes
DIL 1111, EXT 0000	T = 1920 s	= 32 minutes
DIL 0010, EXT 0000	T = 360 s	= 6 minutes
DIL 0010, EXT 0100	T = 840 s	= 14 minutes
DIL 0110, EXT 0000	T = 840 s	= 14 minutes

Max. the switching time of the relay is 32 minutes, the setting step is 2 minutes. LED state is output to OC6.

When command 5 is received (TI5, TIhul3), LED flashes according to the length of the set timeout. The flashing interval is shortened every minute by 50 ms, the last minute is 50 ms and 50 ms is not.

Mode 8 and 9 according to the "Table of modes of operation"

The receiver reacts the open collector outputs to the individual commands received as follows:

DIL4 1234=0000		
Tl version 1256		
Command	Active 100 ms	
TL1	OC4	
TL2	OC3	
TL3	OC5*	
TL4	OC6, Re	
TL5	OC1	
TL6	OC2	
Tlhul1	OC4	
Tlhul2	OC6, Re	
Tlhul3	OC3, OC5* a OC5*	

DIL4 1234=1000 Tl version 1234		
Command	Active 100 ms	
TL1	OC4	
TL2	OC3	
TL3	OC1	
TL4	OC2, Re	
TL5	OC5*	
TL6	OC6	
Tlhul1	OC4	
Tlhul2	OC2, Re	
Tlhul3	OC1, OC3+OC1	

DIL4 1234=0100			
TI v	Tl version 3456		
Command	Active 100 ms		
TL1	OC6		
TL2	OC5*		
TL3	OC2		
TL4	OC1, Re		
TL5	OC4		
TL6	OC3		
Tlhul1	OC6		
Tlhul2	OC1, Re		
Tlhul3	OC2, OC5* a OC2		

* Only available on a 16-pin connector

DIL4 1234=1100			
version PPN04 bin			
Command	S active 100ms	Active 50ms	
	OC3, 2, 1, Re		
none	0, 0, 0, 0	-	
TL1	0, 0, S, 0	OC4	
TL2	0, S, 0, 0	OC4	
TL3	0, S, S, 0	OC4	
TL4	S, O, O, S	OC4	
TL5	S, O, S, O	OC4	
TL6	S, S, O, O	OC4	
Tlhul1	0, 0, S, 0	OC4	
Tlhul2	S, O, O, S	OC4	
Tlhul3	S, S, S, O	OC4	
	0, S, S, 0	OC4	



Note:

The new VPN 03MF blind cane behaves like the VPN 01(02) transmitter.

Outputs OC1 to OC6 are protected against overload by 56 Ohm resistor.

Mode 2 a 3 according to the table "Table of modes of operation"

The OC1 open collector outputs data at 1200 or 2400 or 4800 or 9600 bit/s for each command. Selecting the baud rate is possible by setting switches 1 and 2 of the DIL4 switch.

Settings DIL4 4321	Baud rate
xx00	9600 bit/s ***
xx01	4800 bit/s ***
xx10	2400 bit/s ***
xx11	1200 bit/s ***
x position	does not matter
*** the choice of baud rate is possible from v.05	
and higher (LED after connecting power supply	
voltaae blinks at least 4 times)	

Setting the baud rate:

The format of the data is in the following table:

Output Data Format RS232 (OC) – 1200, 8, N, 1 or 2400, 8, N, 1 or 4800, 8, N, 1 or 9600, 8, N, 1			
VPN01(02)	TL1	20h, 41h, 41h, 0Dh, 0Ah	
VPN01(02)	TL2	20h, 42h, 42h, 0Dh, 0Ah	
VPN01(02)	TL3	20h, 43h, 43h, 0Dh, 0Ah	
VPN01(02)	TL4	20h, 44h, 44h, 0Dh, 0Ah	
VPN01(02)	TL5	20h, 45h, 45h, 0Dh, 0Ah	
VPN01(02)	TL6	20h, 46h, 46h, 0Dh, 0Ah	
VPN03	TL1	20h, 41h, 41h, 0Dh, 0Ah	
VPN03	TL2	20h, 44h, 44h, 0Dh, 0Ah	
VPN03	TL3	20h, 47h, 47h, 0Dh, 0Ah	

The other combinations in the "Table of mode of operation" are not yet in use and it is possible for a large quantity order, customer mode can be implemented.

How to configure the function according to the activity mode table

- 1. Attach the short-circuit jumper to the receiver's programming connector.
- 2.
- Set the DIL4 combination to the desired function.Connect the receiver to a supply voltage of 6 - 16 V.
- 4. The LED flashes and then lights continuously.
- 5. Set the DIL4 inverse combination.
- 6. The LED flashes and then goes out.
- 7. Disconnect the power supply.
- 8. Remove the jumper on the programming connector.
- 9. Connect the power supply and verify the function of the receiver.

Error Messages when Programming

The LED flashes	
2x	The same (already recorded) mode
3x	Setup error DIL4
4x	Undefined mode (reserve)
5x	The desired mode cannot be written

Error Messages for Function

The LED flashes	
2x	Illegal restart
3x	Receiver unlock error
4x	Program stack error
8x	ADF connection error



Technical Specification

86.790 MHz (CZ), 87.100 MHz (SK)
50 Ohm
better than 0,3 μ V for error rate 10 ⁻²
6 – 36 V or 4,8 – 16 V
16 mA (6 V), 8 mA (12 V), 3 mA (34 V)
36 V / 30 mA
100 V / 100 mA
Log0: 0-1V
Log1 2,5 – 36 V
-20 to +60 °C
71 mm x 49 mm x 22 mm
approx. 60g
Receiver PPN 04 mounts spec. a clip provided as an accessory
and two M3 screws with a pitch of 60 mm.

Order Number :



For ExamplePPN 04 VP10K-08:

Power voltage 6 - 36 V, antenna glass bushing, 10-pin connector, PPN 04 set as PPN 01(02) on the Czech frequency.

 Date:
 24. 1. 2018

 FW:
 0.5

 Data sheet version:
 1.3